Case 7260-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : July 14, 2003

Dennis R. GRAVOLIN :

Serial No.: 10/607,482 :

Filed: June 27, 2003 :

For: ADJUSTABLE ELECTRICAL TELL : TALE MODULAR UNIT AND EXTERNAL: MONITOR :

SUBMISSION OF PRIORITY DOCUMENT

Honorable Commissioner of Patents
and Trademarks
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

Submitted herewith is a certified copy of Applicant's Australian Patent Application No. 40593/02, filed May 13, 2002. The right of priority has been claimed pursuant to the provisions of 35 U.S.C. §119.

It is respectfully requested that receipt of this priority document be acknowledged.

Respectfully submitted,

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Patent Office
Canberra

I, JONNE YABSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Complete specification in connection with Application No. 40593/02 for a patent by DENNIS RONALD GRAVOLIN as filed on 13 May 2002.

WITNESS my hand this
Twenty-sixth day of June 2003

JONNE YABSLEY
TEAM LEADER EXAMINATION
SUPPORT AND SALES

TTSPAD0520/02

PATENT OF ADDITION A
-ELECTRICAL TELL TALE SAFETY SYSTEM FOR TRAILERS - NEW GENERATION TRAILER CONNECTOR—

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ELECTRICAL TELL TALE SYSTEM FOR TRAILERS
PATENT OF ADDITION A
- NEW GENERATION TRAILER CONNECTOR -

INTRODUCTION TO THE PARENT INVENTION AND THE ADDITION

The Electrical Tell Tale System for Trailers, Patent No. 719780 is a device which monitors the electrical systems of trailers and communicates to the driver of a hauling vehicle if those circuits are operating correctly or are malfunctioning. The Electrical Tell Tale System for trailers consists of a Main Control Unit which is mounted at the rear of the vehicle and wired in series with each trailer circuit. From the Main Control Unit is a modular cable which runs to the instrument panel of the vehicle and at this end of the cable is the Tell Tale Monitor which houses a number of Light Emitting Diodes. The Light Emitting Diodes indicate to the driver whether the trailer circuits are functioning correctly.

The addition of the original invention is based on the Main Control Unit and its casing and connections. The electronics of the original invention are now housed in specific moulded and designed "modules" which are able to be housed and fitted in any type of common trailer connector, including male, female connectors and adapters. This design forms a new generation trailer connector with an Electrical Tell Tale Safety System combined. Instead of an old connector being replaced with a similar, new connector, the Electrical Tell Tale Safety System connector can be installed just as easily, and at the same time greatly increasing safety on the roads.

SUMMARY OF THE ADDITION

With reference to the Original Invention, the Main Control Unit was housed in an epoxy filled plastic housing which has two leads coming out either side, and

these leads where distributed into connectors to connect the Main Control Unit to the trailer wiring loom of the vehicle. With the addition, the Main Control Unit is now placed at the end of the vehicles trailer wiring harness, actually inside the trailer connector.

The Main Control Unit's electronic component's, and its main connections are epoxy moulded in modules which can be a number of differing moulded shapes, specific to common trailer connector types. The main connections of the Main Control Unit protrude from the module and are aligned for exact and accurate fit with any trailer connectors. All connections to the Main Control Unit including the Tell Tale Monitor connections are now screw type connections. This design eliminates the need for the vehicles wiring to be modified as the system is now housed in the actual trailer connector. The module is designed to monitor all trailer connections within the plug or a specified number of connections. The Main Control Unit, Tell Tale Monitor operate the same as the original invention. The addition is a convenient new step in the housing, connections and fitment of the Main Control Unit. A Tell Tale System being part of a trailer connector forms a new generation in trailer connections.

DESCRIPTION OF THE DRAWINGS

Figure 1 shows the main circuitry of the main invention showing the main addition of the trailer connector housing and how the connections of the Main Control Unit are now enclosed in the trailer connector housing. This figure also shows the capability of the module monitoring all trailer connections within the plug.

Figure 2 shows the Main Control Unit Module for the common type seven pin flat trailer plug and its main connections.

Figure 3 shows the Main control unit module for the common type large seven pin round trailer connector and its connections.

Figure 4 shows the main control unit module for the common type seven pin

round trailer connector and its connections.

Figure 5 shows the Standard pin out of the seven pin flat trailer connector

Figure 6 shows the outline of a standard seven pin flat trailer connector

Figure 7 shows the connection side of the standard seven pin flat trailer connector.

Figure 8 shows the Main Control Unit Module for the Seven pin flat trailer connector in relation to all other drawings on the page.

Figure 9 shows the Main Control Unit Module for the seven pin flat trailer housed in the seven pin flat trailer connector and all of its connections.

Figure 10 shows the pin out for the large seven pin round trailer connector

Figure 11 shows the outline of the large seven pin trailer connector

Figure 12 shows the connection side of the large seven pin trailer connector

Figure 13 shows the Main Control Unit Module for the large seven pin trailer connector in relation to all other drawings on the page.

Figure 14 shows The Main Control Unit Module for the large seven pin trailer connector housed in the large seven pin trailer connector and all of its connections.

Figure 15 shows the pin out of the seven pin trailer connector

Figure 16 shows the outline of the seven pin trailer connector.

Figure 17 shows the connection side of the seven pin trailer connector.

Figure 18 shows the Main Control Unit Module for the seven pin trailer connector with reference to all other drawings on the page.

Figure 19 shows the Main Control Unit Module for the seven pin trailer connector in the seven pin trailer connector and all of its connections.

Figure 20 shows an example of a standard seven pin flat male plug

Figure 21 shows an example of a standard large seven pin round male plug

Figure 22 shows an example of a standard seven pin plug.

Figure 23 shows an Example of a seven pin flat plug to seven pin round plug trailer adapter

Figure 24 shows an example of seven pin flat trailer connector to a large seven pin plug trailer adapter.

Figure 25 shows an example of seven pin plug to large seven pin plug trailer adapter.

DETAILED DESCRIPTION OF THE INVENTION

With reference to figure 1a the original inventions circuitry can be seen and its operation is identical to the patented design. 25 shows the original epoxy casing which is now in the form of a accurate moulded module as can be seen in figures 2 to 4. A1 represents the trailer connector that forms the complete housing of the Main Control Unit which encases all connections combining the trailer connector itself and Main Control Unit as one unique device.

A2 to A8 shows the capability of the Main Control Unit module to monitor all connections with in the trailer connector. A2 to A8 shows an auxiliary circuit and A3 to A6 shows the current sensing switch for the circuit. A9 in the Tell Tale Monitor is the light emitting diode for the auxiliary circuit. Again the additions of A2 to A9 and figure 1b showing the additional light emitting diode for the additional circuit demonstrate the capability of the module to monitor all circuits within the trailer connector.

Figures 2 to 4 show in detail the modules A10, A29, A48, their distinctive outlines A11, A30, A48 and their connections A12 to 28, A31 to A47 and A50 to A65 for the three common connector types, however the modules can be adapted to suit any trailer connector available.

A12 to A21, A31 to 40 and A50 to 59, are the connections from the vehicles trailer wiring harness into the Main Control Unit, these connections also incorporate the connections for the Tell Tale Monitor. They are of a screw type connector. All connections A12 to A21 incorporate connections all connections 26 to 31 in figure 1 and all Tell Tale Monitor connections in 2, figure 1.

Connections A22 to A28, A41 to A47 and A60 to A66 are the Main Control

Unit Module's connection to the trailer connector itself. These connections are the same as 33 to 38 of Figure 1. However the locations of these connections are not relevant to 33 to 38 of Figure 1. These connections of A22 to A28, A41 to A47 and A60 to A66 are connector pins with ferules that can be placed into the connections of the trailer connector and then tightened.

Figures 5, 6, 7, 8 and 9 describe how the Main Control Unit Module A70 is mounted into the standard seven pin flat trailer connector, A67, 68 and 69. A71 in figure 9 shows the new generation trailer connector with the Main Control Unit Module A72 of the Electrical Tell Tale Safety System installed. A75 to A79 are the main connections of where the Main Control Unit Module A72 is connected to the main connections of the trailer connector. These connections are the output for the trailer circuits as in 33 to 38 of Figure 1. A80 to A89 are the connections which now take the place of the connection now used by A75 to A79. A80 to A89 are for all connections from the vehicle to the trailer connector, and also all Tell Tale Monitor connections. It can be seen that the Main Control Unit Module A70 fits neatly into the connector A67 to A69 and forms one complete unit A71.

Figures 10 to 14 demonstrate how the Main Control Unit Module for the large seven pin round trailer connector A92 is fitted into the connector. A89 shows the pin out of the common large seven pin connecter, A90 is the outline, and 91 shows the connections side of where A92 the Main Control Unit is mounted. Figure 14 shows the complete new generation connector A93 with the Main Control Unit module connected A94. Connections 95 to 104 being from the vehicles trailer wiring harness and the Tell Tale Monitor, and take the place of connections A105 to A111 which are the main connection from the Main Control Unit Module A94 to the connector itself A91. These are the output for the trailer circuits when connected as in 33 to 38 Figure 1. . It is again seen the Main Control Unit module A92 is aligned and fits neatly into the connector housing A91 and the connections A105 to A111 are accurately positioned.

Figures 15, 16, 17, 18 and 19, is a description similar to the two previous, however this time the Main Control Unit Module A115 is housed in a seven pin round trailer connector, of which the pin outs A112, outline A113 and connection side of the connector A114 is shown. A116 shows the complete unit with the Main Control Unit Module A117 connected and forming part of the connector. A118 to A127 are the connections from the vehicles wiring harness and Tell Tale Monitor and are of screw type. A128 to A134 are the connections form the Main Control Unit Module A117 to the trailer connector A114 and go to the respective trailer circuits. A115 is aligned neatly to form A116 and all connection are positioned accurately.

The Main Control Unit Modules in Figures 2, 3, and 4 have the ability to be mounted into any designed trailer connector and form part of it. Figure 20, 31 and 22, consisting of trailer connector plugs a135, A136 and A137 respectively show examples of connectors in which the Main Control Unit Module can be mounted in. Figures 23, 23 and 25 show adapters A138, A139 and A140, also the Main Control Unit Module is able to be monitored in these types of trailer connections.

In all cases the Main Control Unit Module is able to be mounted into any existing and yet to be manufactured trailer connector by its specific moulded designed and aligned connector pins, forming part of the connector or adapter itself an changing the normal plugs operation to a complete unit that is able to monitor the condition of all of the connections and circuits of the trailer connector itself, this in turn forming a new generation trailer connector in the interests of road safety.

CLAIMS OF THE ADDITION

1. An Electrical Tell Tale Safety System as in the original invention where the Main Control Unit of the original invention forms part of an existing or yet to be manufactured trailer connector , in which the said Main Control Unit of said original invention is in an specifically moulded module, which fits neatly and accurately into the said existing or to be connector in which the said Main Control Unit Module has aligned pin connections to connect to and monitor all of the existing connections in the plug , the said main control unit module consists of screw type connections for the wiring from the vehicle harness and Tell Tale Monitor, said Main Control Unit Module being housed in the connector in this way and by its connections changes the normal operation of said existing and to be trailer connector which is able to monitor all of its housed circuits and connections in one complete unit, forming a new generation trailer connector.
2. A said new generation trailer connector of Claim 1 where in the trailer connector can also be any existing trailer plug, socket or adapter.
3. A said Electrical Tell Tale Safety System as in Claim 1 and new generation trailer connectors as in claims 1 and 2 with reference to all accompanying drawings.

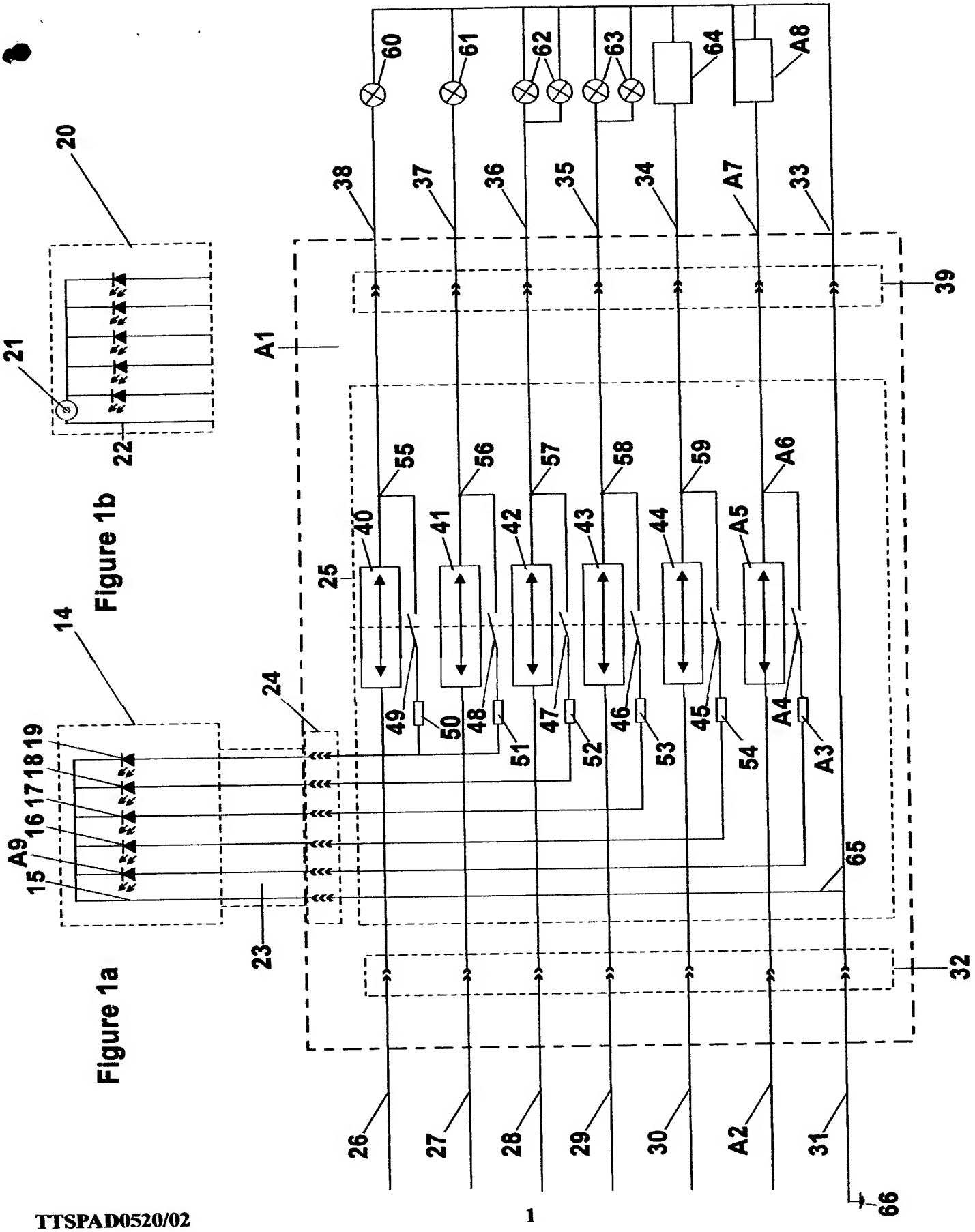
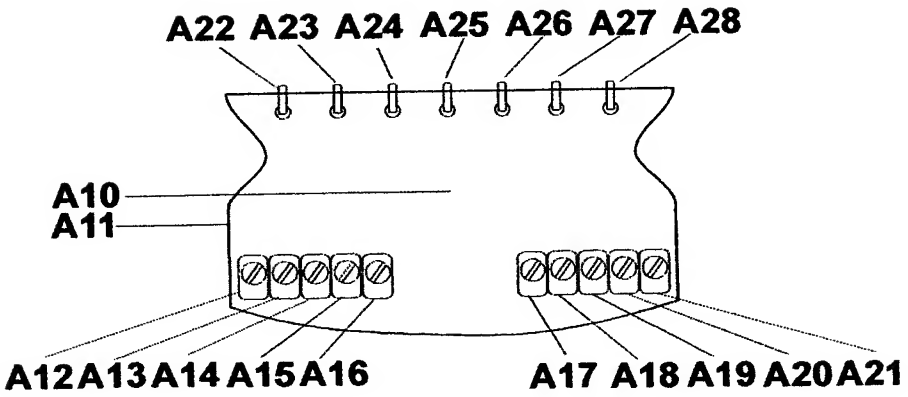


Figure 1b

Figure 1a

Figure 2



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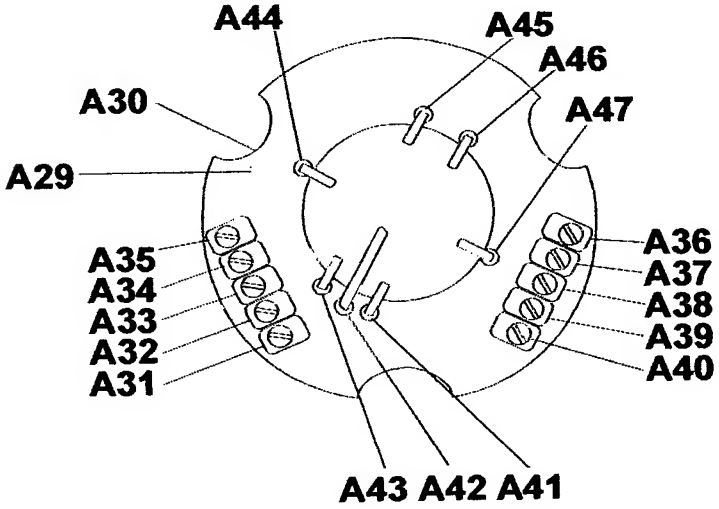

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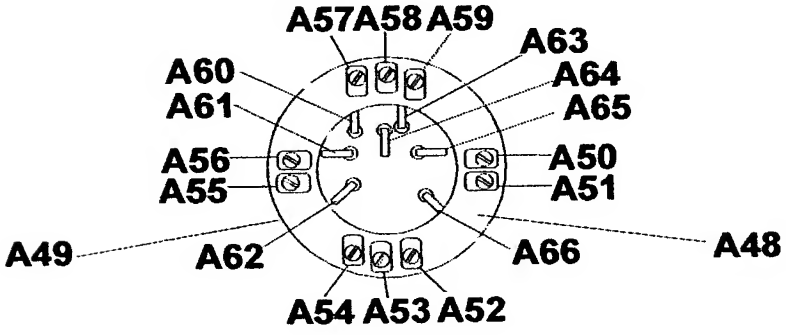

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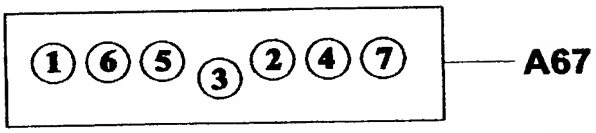
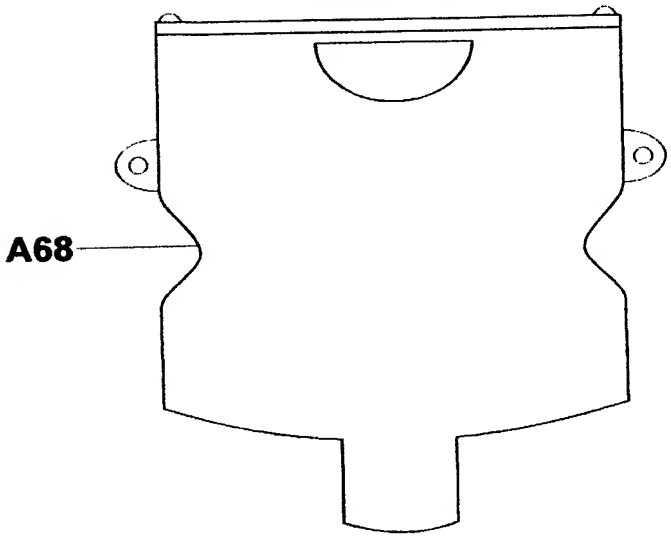


Figur 6



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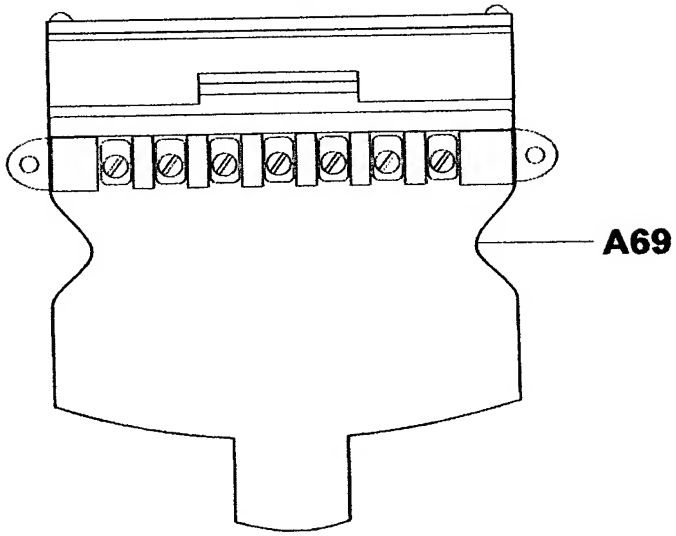

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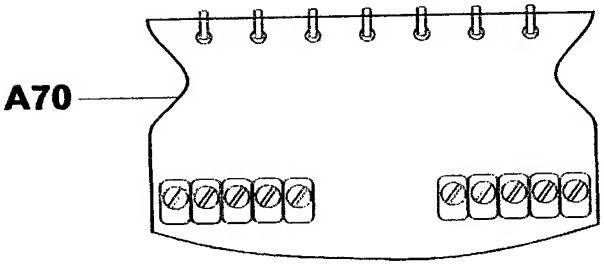

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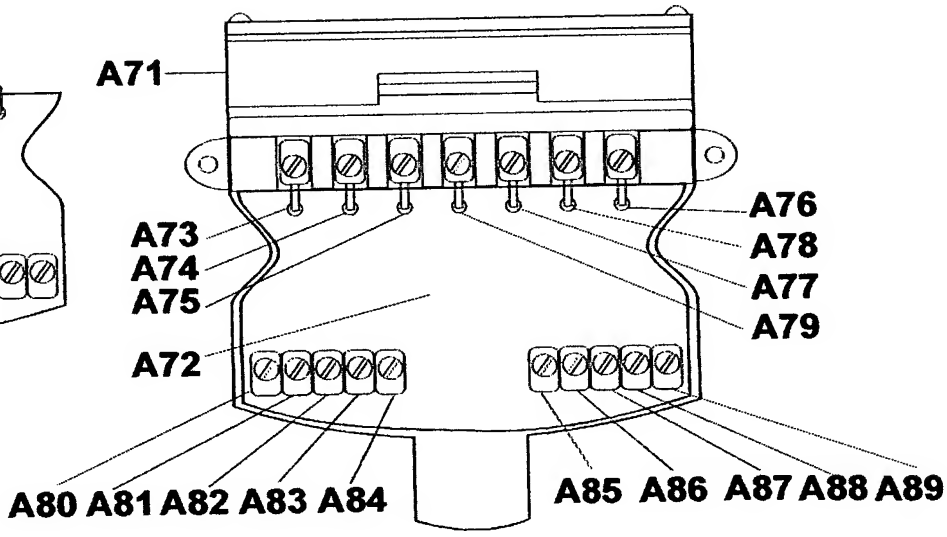

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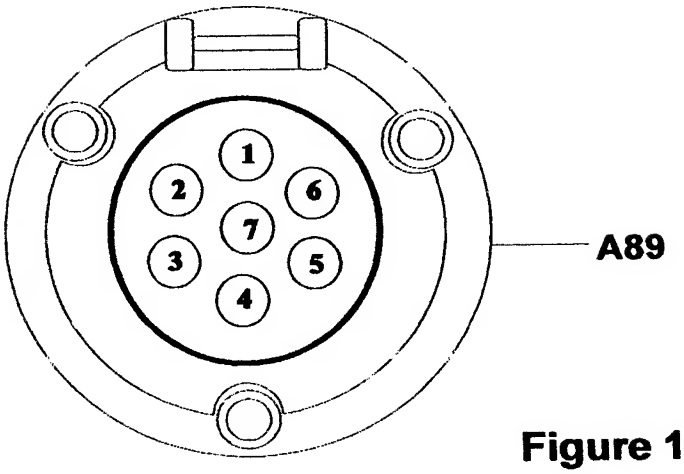

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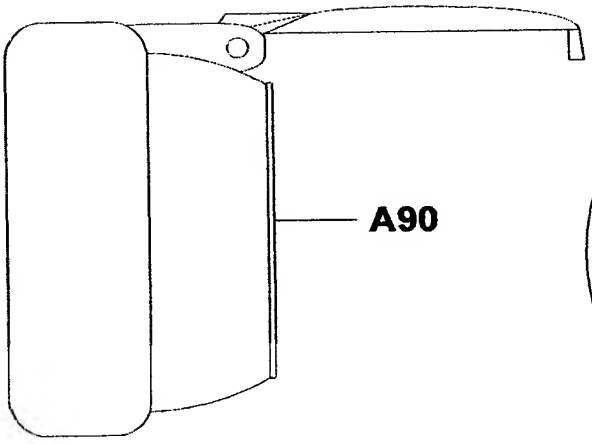

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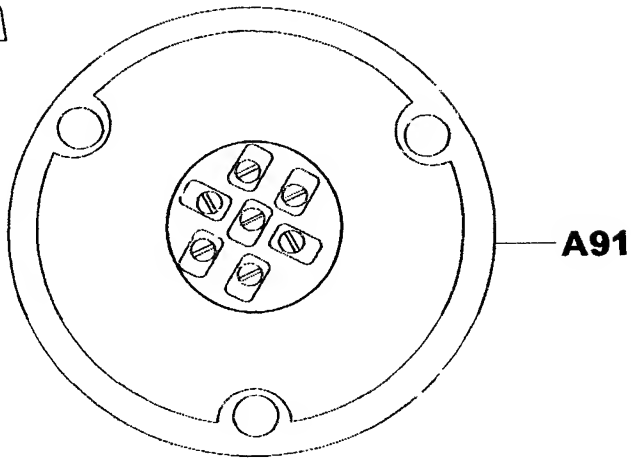

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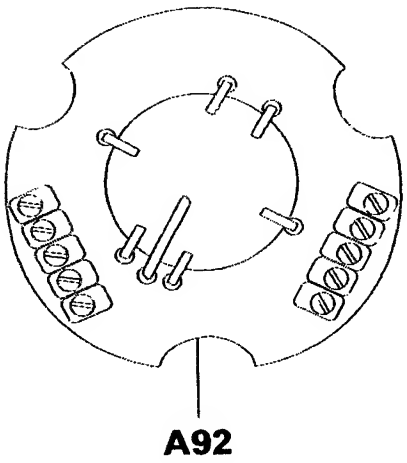

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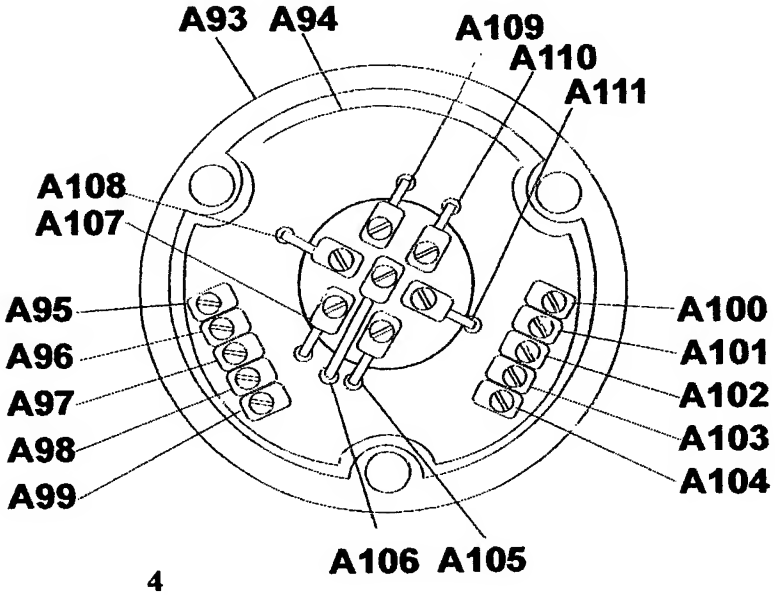

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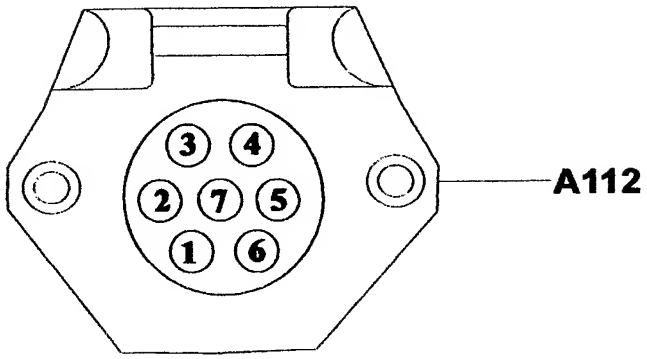

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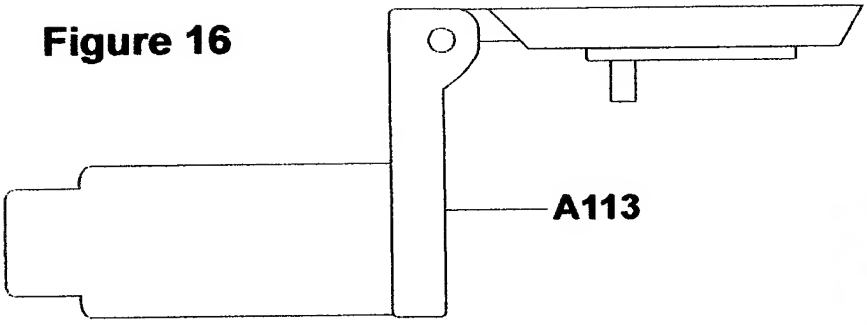

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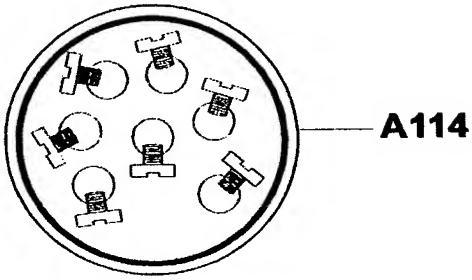

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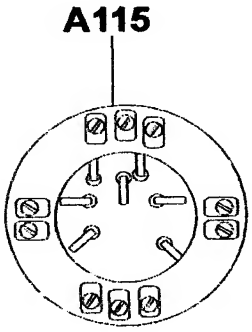


Figure 19

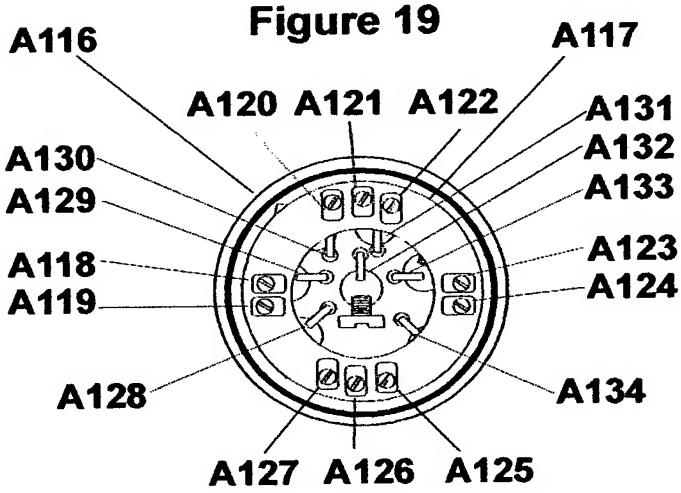


Figure 20

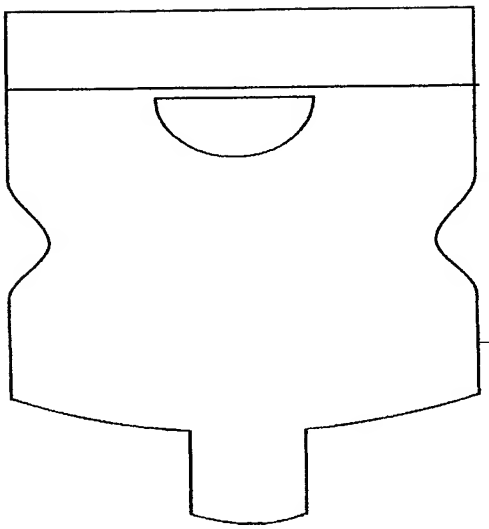


Figure 21

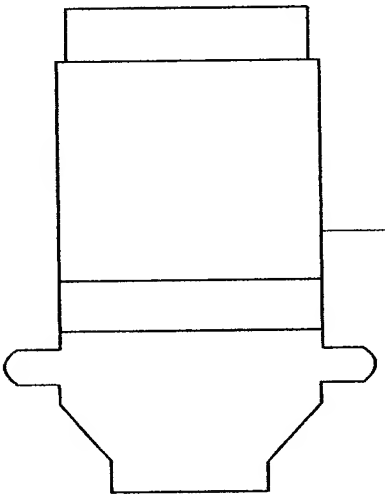
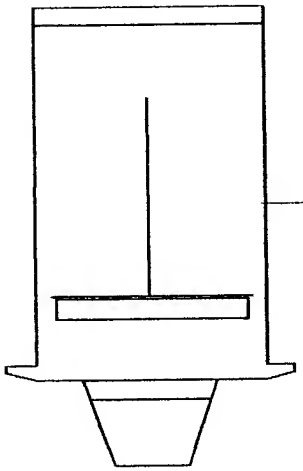


Figure 22



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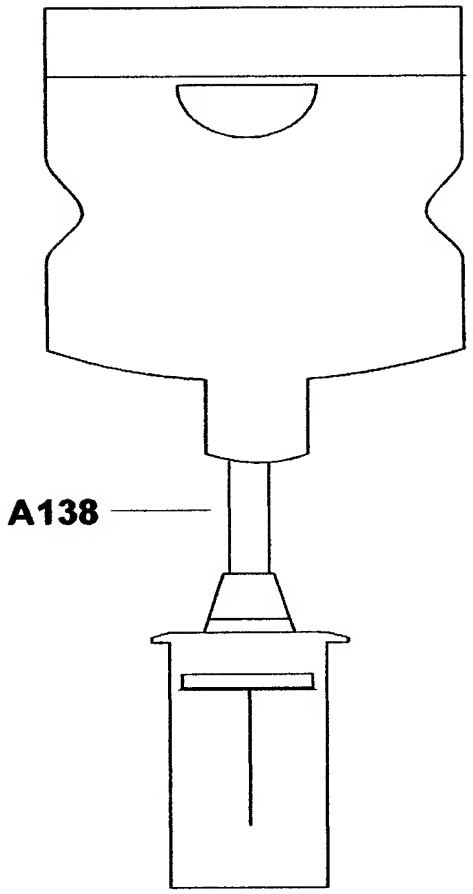

Figure 24

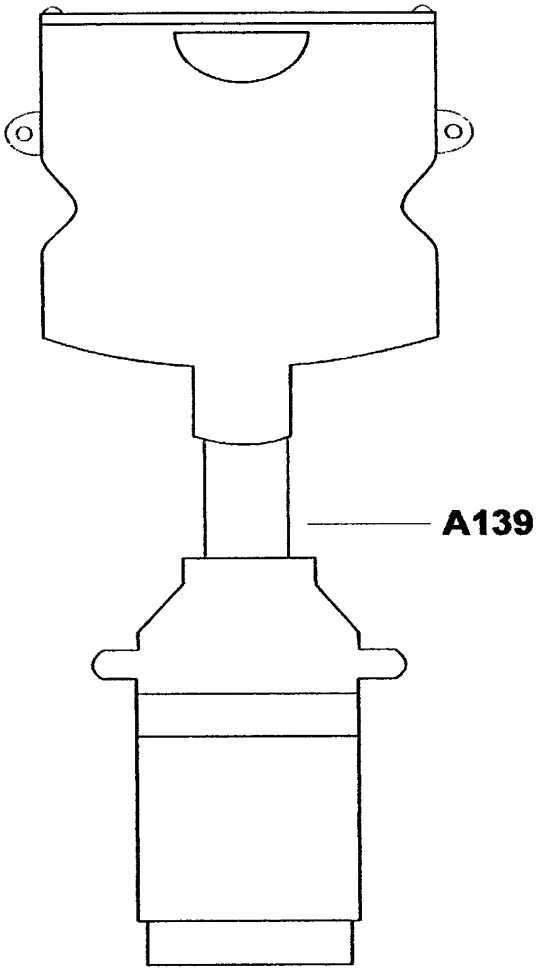

Figure 25